Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

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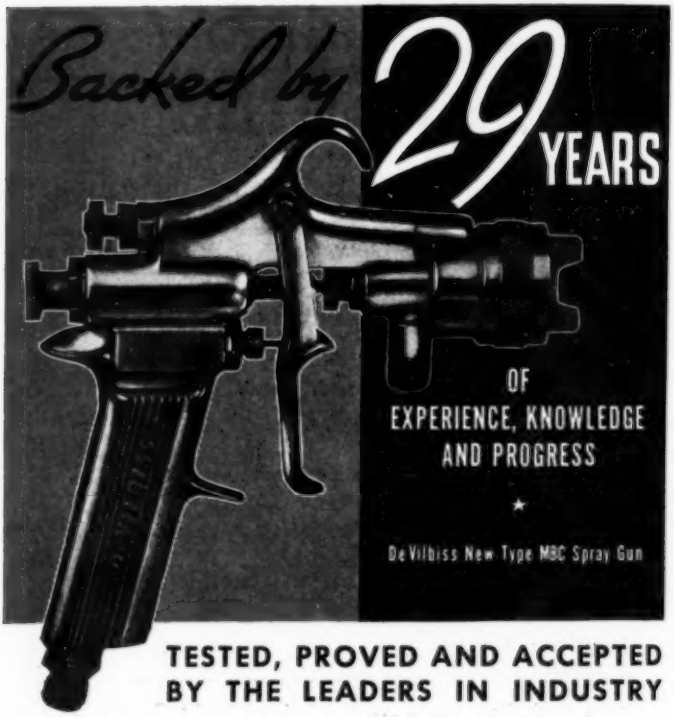

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Letters from Readers of "Industrial Finishing"

Editor's Note — These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters addressed to them in care of this office will be forwarded immediately.

Black Metal Sheets

We have been told of some concern—whose name we hope to learn from you—that puts out black metal sheets of the trade name "Black Beauty." Would very much appreciate finding out the name of this firm.—O. A. Co. (Mfrs. of Electric and Gas Motored Washers).

EDITOR'S NOTE: We understand this is a product of the Empire Sheet & Tin Plate Co., Mansfield, O.

Brush 50 Years Old

Some time ago "Believe It Or Not" Ripley showed a picture of a paint or varnish brush used for 20 years. Why, that's nothing. I have a dozen brushes of that age. A good varnish brush, used every day, will last for years. There's little or no wear to it. You just flow on the varnish; don't scrub it on. The varnish is between the bristles and the object being coated.

I'm sending you a hand made varnish brush that I bought in 1885 from Chas. Thum & Co., Philadelphia, Pa. —now out of business I suppose. This brush was in service practically every day for 40 years, and it's still in good condition, although the bristles are about 1-in. shorter than

Was in daily use for 40 years.

when the brush was new. The brush is 2½-in. wide; its bristles were made from a white wild boar.

I was in the carriage painting business when I began using this brush. Later I painted bicycle frames, and still later I refinished automobiles. I am now retired at the age of 73.—A. J. Compton, R. F. D. 4, Trenton, N. J.

Flock Finish

Please give us the address of the Stapled Fibres Corp., mentioned in INDUSTRIAL FINISHING magazine. We are also interested in any copies you may have pertaining to spraying enamels and flock finishes.—D. C. Art Co. (Painting, Spraying and Rhinestone Pasting).

Prevents Veneer Checks

On pages 46 and 50 of May issue of INDUSTRIAL FINISHING magazine, I read a Q. & A. about "Rosewood Veneer Checks." I am sending you several leaflets of general instructions for treating veneer to prevent these checks. If rosewood veneers, or any other veneers for that matter, are treated according to the instructions given in this leaflet, and then veneered with any good grade

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Save time, energy and money by using these highly flexible, quick-sticking masking tapes. They leave keen, clean edges for exact color separation in every weather.

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of glue on the market, you will always get absolutely satisfactory results. Glue-Rite No. 20 is being used daily on a large scale throughout the United States and Canada for this purpose, namely preventing checks in veneers.—F. V. Tischer, Pres., The Liquafill Mfg. Co.

Finishing Supplies

Could you put us in touch with Mr. James W. McFadden, who has an article on page 8 of your May number? Wish to find out from him the brand of lacquer shader stain and semi-gloss synthetic varnish he used, and where to get the "Water-Oil" used for rubbing. Does he use pumice stone with this water-oil, and of what fineness?

We are handicapped here in Pittsburgh, Pa., by not having any supply house for furniture finishing materials. The average clerk in paint stores is not posted on finishing products used in manufacturing.—L. F. Co. (Store Equipment).

Butyl Lactate

Please send us information regarding a source or sources of supply for "Butyl Lactate"?—T. N. Co. (Metal Caskets).

Shellacol

Please advise who manufactures "Shellacol."—N. Bros. Co. (Toy Manufacturers).

EDITOR'S NOTE: Both of the above are products of Commercial Solvents Corp., 230 Park Ave., New York, N. Y., see advertisement in Dec., 1935, page 37, and March, 1936, page 33.

Spray Hazards

With your letter of March 26, 1936, you have kindly sent me tear sheets of the article "Lacquer Spraying Hazards and Safeguards" from the April, 1929, issue of your magazine, for which I bring you my best thanks. This article refers to a series of experiments carried out by Mr. Henry Gardner (Circular 250, Scientific Section, Educational Bureau, National Varnish Makers Association) entitled "Physiological Effects of Vapors from a few Solvents used in Paint, Varnish and Lacquer." I am very much interested in these experiments and would be

especially grateful to you if you will procure for me the paper of Mr. Gardner. I am engaged in clinical and experimental studies on the same subject. My experiments are carried out in the Royal University of Copenhagen (Denmark). When they are finished I shall be glad to inform you about the results if they are of interest for your magazine.—Dr. Jakob Jakobsen.

Cement Bricks?

Would you please advise us where we can purchase cabinetmakers' cement which we understand comes in brick form and is capable of being grated for use?—F. X. Co. (Industrial and Commercial Wood Products).

Solvent Purifier

In your magazine INDUSTRIAL FINISHING for February, 1936, page 40, we notice an item about a solvent purifier to clean solvents, and wish you would tell us where we can buy this machine and at what price, if possible.—A. R. Co. (Casket Hardware).

EDITOR'S NOTE: This is a product of S. F. Bowser & Co., Ft. Wayne, Ind.

Uniforming Stains

In the January issue of INDUSTRIAL FINISHING, on page 27, we notice mention of two types of uniforming oil stain known as "C & O" and "L-Mac-E." Would you kindly tell us the name of the manufacturer of each of these materials?—X. Radio Co.

EDITOR'S NOTE: The manufacturers are: Cudner & O'Connor Co., 4335 W. Kinzie St., Chicago, Ill.; and The Lawrence-McFadden Co., 1400 Frankfort Ave., Philadelphia, Pa.

Brush Block Finish

In May issue, page 75, the editorial entitled "Impregnation of Wood Solves Certain Problems" interests us in connection with the problem of how to finish wooden brush blocks, which have to be finished before being put in the automatic brush machine which bores the holes and inserts the bristles at one set-

(Continued on page 62)

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Here's the utmost in paint-spraying protection, plus real working comfort. Extremely light, well-balanced, easy to adjust. Fits any face perfectly, permits full vision. The great filter area materially reduces breathing resistance, increases filter efficiency and life of cartridges. The Twin - Cartridge Comfo *costs less to maintain!* Write for Bulletin EM-2. Demonstrations arranged on request.

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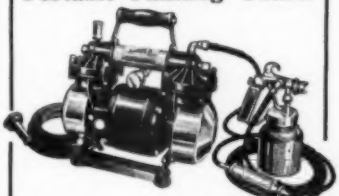

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Crown Spray Gun Mfg. Co.
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Warehouses in Principal Cities

What a Service-man's K

Editor's Note: This subject was brought up by an industrial finishing salesman-demonstrator, Mr. C. L. Nagel, whose letter to the Editor was published in April issue. After reading that letter and the Editor's comment, Mr. Smith started writing—and this article is the result.

★ ★ ★

by W. T. Smith
Service Engineer

MY ATTENTION was attracted to the recent editorial in INDUSTRIAL FINISHING (April, page 63) inviting opinions on what a finishing service man's kit should contain. Having long had my convictions on this subject, supplemented by several years of experience in testing and servicing practically all types of finishing materials, I am taking the liberty of submitting herewith my comments on the subject. My experience in the physical testing of industrial materials, and the engineering and processing of finishes has been quite wide, especially with reference to radio cabinets. At present I am engaged as a service engineer for a manufacturer of finishing materials.

The nature and number of items that will be found indispensable to the industrial finishing service man and demonstrator will rest very largely upon three major factors, namely:

1) The experience and skill of the individual himself; that is involving the type of demonstration he puts on.

2) The type of merchandise he specializes in servicing.

3) The type of customer being served.

Obviously, between a small rural chair factory and say a huge automobile body plant, there will be a wide difference in available equipment on the ground. In order to generalize as far as possible therefore, without taking in too much territory, let us suppose that we wish to offer demonstrations and service to the average furniture manufacturer, ranging from the small novelty goods plant to one that will turn out two or three car loads of radio cabinets a day. Assuming that servicing these customers involves a complete line of finishing materials and supplies from stains to rubbing compounds, our needs will be as follows:

1) Spray gun with cup and adapters.
2) Graduate for measuring.
3) Spatula or palette knife.

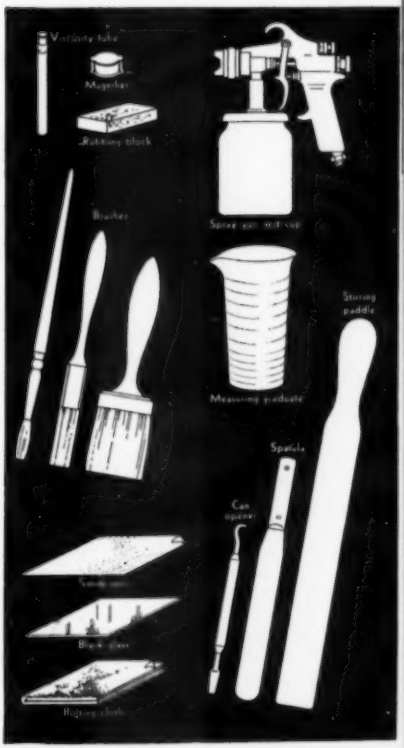
Kit Should Contain »

4) Can opener.
5) Magnifier.
6) Brushes.
7) Sandpaper.
8) Black glass?
9) Viscosity tubes?
10) Rubbing block?
11) Stirring paddles.
12) Bolting cloth.

Let us take up these items in detail, one at a time:

Spray Gun—The idea of carrying along a spray gun may raise a storm of protest from those who think this is going a bit too far. However, it is frequently a fact that a gun in good working order is not available for experimental work in a busy shop, and in a great many cases a cup gun for applying small quantities of materials is not included in the general equipment. Therefore I suggest selecting and carrying a medium sized, single-trigger gun of standard make—one that will spray lacquer, varnish or enamel, and yet be amenable to fine adjustment for shading, spotting in, etc. The cup should be of 1-quart capacity and, of course, of the pressure-feed type, with which one can simulate the appplication of material by any factory equipment, which is not true of the more conventional suction feed. Assorted sizes of fluid tips and corresponding needles will adapt your gun to any requirements encountered. Adapters are available which will permit the attaching of air hose of any standard make of equipment to your own spray gun.

Glass Graduate—If spray guns are scarce in the average shop, accurate measuring vessels are practically non-existant. In my opinion, this is the most valuable



piece of equipment one can carry, and if you've ever tried to reduce something four to one in a tin can, "B' guess and B' God," you'll agree. One measuring graduate is usually sufficient. It should be the type that has graduations in both fluid ounces and c.c. (cubic centimeters). One of the 8-oz. capacity will be ample for most purposes. Buy the heavy, flint glass, flat bottomed "beaker" type—not the conical "footed" one. Drop or bump the latter, and the "foot" breaks off and you have something like an ice cream cone that you can't set down right side up. The former is tough and can "take it." I've dropped them on a concrete floor and had them bounce a foot high and ring like a bell, without even chipping the edges.

For fine jobs, such as the "hair splitting" of color in stains for example, you may find one of the little graduates—20 to 50 c.c. graduated in single c.c.—very useful. These are, I believe, available only in the footed type.

Spatula—One about the size of an ordinary case knife will serve, and its many uses will be apparent to any service man.

Can Opener—One of those little gadgets with a screw driver tip on one end and a slight hook on the other is indispensable in dealing with friction-top cans. It's much better than a coin, or hunting the electrician to borrow his screwdriver.

Magnifier—A single or double lens of about 20x, which folds to vest pocket size, has settled many a discussion about the filling of pores, and the presence of scratches or air bubbles.

Brushes—By all means carry your own—flowing, knockout, striping, pencil or show card—whatever your job may require. There are shops where a new brush, or even a clean one, isn't seen in six months; and besides the foreman hasn't time to hunt one for you.

Sandpaper—You'd be surprised, maybe, to learn how many shops there are where they don't know that sandpaper is made any finer than 5/0, or the difference between cabinet and finishing grades. Carry a couple of sheets each of several grades, ranging from 5/0 to 8/0 or 9/0. In the latter criterion you'd perhaps better go to No. 320 waterproof sandpaper. Another stranger to many is No. 4/0 steelwool. A small wad will have its uses—to use as a replacement filter in the interior pressure vent in your spray gun, if for nothing else.

Black Glass—This is one of the questionable items perhaps, but is somewhat like fire insurance; "When you need it, you need it badly." Just a piece of window glass of any convenient size or shape, coated well on one side with a black enamel, is the quickest and most accurate test background for judging the sheen of flat varnishes or lacquers. Just pour the materials to be compared, side by side on the clean side of the glass while supporting it at about 60° to the horizontal, and let them dry. Against the black mirror-like surface, a very fine discrimination in sheen is at once apparent. It is interesting to note that a variance of one unit in gloss on the elaborate prismatic optical instruments sometimes used in gauging gloss, is discernible to the naked eye by this method.

Viscosity Tubes—Another one

for the "fancy" division perhaps, but a great trouble saver. Tubes made for this purpose are roughly 4-in. long by about 7/16-in. outside diameter, and have a very accurate inside dimension or "bore," and two scored lines around the tube near the open end. Fill to the lower line and force the cork down to the upper one. Use a tube for each material to be compared and you have a standard tube with a standard-size bubble. Hold two filled tubes in the hand for a few minutes to uniform the temperature; then invert them simultaneously. The speed of bubble travel will show a comparison in viscosity which is surprisingly accurate. Invert so that the bubble leaves the bottom of the tube and travels toward the cork; the surface tension of the bubble has an affinity for the cork and tends to give a less accurate result when starting from the corked end.

Rubbing Block—Good, pressed-felt rubbing blocks are at a premium in most shops and all good rubbers have their pet blocks. Have yours too and then you will have one—when and if you have use for it—that isn't soaked with oil when you want to use water, or vice versa.

Stirring Paddles—Two or three clean, wood paddles—most manufacturers have them for advertising purposes—are never amiss. Did you ever try to find a clean stick in a busy finishing room?

Bolting Cloth—This will puzzle most readers I'm sure, but a piece of No. 9 silk bolting cloth about 18-in. square is just about the best strainer obtainable. It folds into little more space than a handkerchief, is about 80 mesh to the inch in texture, and is as durable as wire screening. It may be washed out and re-used innumerable times, and anything that goes through it will pass a spray gun.

No matter how much equipment is carried, a time will come when you need something else. In the above listing, I have purposely omitted such things as burn-in shellac, scrapers, putty knives, etc., as belonging more to a repair artisan than to a service representative. Since the range of service men is from the craftsman who, single handed, finishes and decorates a suite of furniture, to the fellow who stands back and tells the workman to "put this on now . . . .", the above suggested equipment is believed to overlap on both fields.

Nothing has been said of intangible personal equipment, and perhaps it is assumed that a service man worthy of the name is fundamentally so equipped. It is assumed therefore, that he has at least a working supply of tact, courtesy and consideration for others. Just because some of the finishing foremen with whom a man comes in contact, wear ragged, stain-spotted clothes, chew tobacco and speak ungrammatically—this doesn't mean that the service man can't learn something from them.

Add to all the above a few years' experience, a good color eye and an "educated" thumb nail; serve with a dash of justified enthusiasm for the merchandise, and I'll show you a service man who is a credit to his employer and a welcome visitor at the customer's plant.

Your comments and suggestions on the foregoing article are invited. Do you think the author

has included just enough or more equipment than is needed? Would you include certain other items? If so, what do you suggest? Why? A letter or article about some of your experiences as a service man, or with a finish service man, will be welcome. The best comments on this article will be published and paid for.—Ed.

Wood Finish Stains

IN WOOD finishing the stain should be given plenty of drying time. If the stain doesn't dry thoroughly before the next following operation it is sure to cause trouble in a short time—perhaps before the finishing process is completed.

There are some very rapid drying stains on the market, such as lacquer stains, but those I've tried haven't the depth that many finishers desire. In my opinion it's hard to beat a good water stain for depth and color—when the job is high priced enough to stand the increased expense incident to using water stains. In the matter of economy and speed, water stains are objectionable because they raise the grain of the wood more or less. As a result, a thin sizing coat, followed by light sanding, is required — and unless the sanding is done very carefully it may cut through to the bare wood in places.

A number of good non-grain-raising, non-fading stains have come into extensive use in factories that produce cheap and medium priced goods. Before deciding upon one of these, however, I would test it or be reasonably sure about its merits. If your stain goes bad, your entire finishing job is gone. You can't put something on top of it to correct it — not if you want a transparent finish. — BEN J. STUDER.

Booklet on Rubber Paints and Coatings

An interesting, illustrated booklet of 24 pages, 5½x8½-in., prepared by Collord, Inc., 1530 Rosedale Court, Detroit, Mich., reveals considerable information about liquid rubber and some of its industrial uses such as long-time durable coatings for tanks and plating racks, temporary protective coatings for finished articles, metal primers and adhesives. Copies will be sent free to executives who mention this news item.

Cudner & O'Connor's First Anniversary

A letter from the firm of Cudner & O'Connor Co., 4335 W. Kinzie St., Chicago, Ill., reminds us that the company observes its first anniversary this month. Many years of experience are represented in the personnel of this organization which has enabled them to perfect finishing materials that are now enjoying wide acceptance in the trade.

Mr. H. E. Cudner, President, states that with the upturn of business, increased demand is creating the need for better merchandise. Style, design, workmanship are all more authentic and greatly improved. To meet the demand greater thought, skill and efficiency are paramount. As an aid to the manufacturer of finished merchandise, the manufacturer of the materials is constantly on the alert through research, by care and economical operations to find for him those things which will enable him to hold his place in the market.

Mr. Thomas E. O'Connor, Vice-President, has supervised the formulation and production of the materials offered by this firm. According to the company's letter, the interest aroused by the new QCPW stain is very gratifying, for in perfecting this product the work was carried on with the full realization of the features most desired by manufacturers of furniture and other wood products.

We need to observe strict rules about cleanliness in connection with all phases of finishing, if we expect the finish to be lastingly attractive.

Add thinner slowly while stirring

by
C. L. Nagel

Thinners and Thinning

DURING THE last few years more gelatine desserts were served than ever before. Perhaps that had something to do with the fact that it takes only a tablespoonful of dry gelatine to thicken a whole pint of water. But regardless of the virtues of gelatine in that respect, it has performed still another useful service. For, after wiping the stray bits from the vest and returning to the paint shop, we are not so much inclined to shoot off an instantaneous opinion of the value of a lacquer—whether it is a good purchase or not simply because it may have a thick gooey consistency. It may require a one-to-one reduction and yet go no farther than another which takes only one to three.

Most of us know that one kind of "cotton" can give a pretty good imitation of the gelatine and water stunt; and most finishers refrain from rendering verdicts 'till after having made the test known as "count the painted pieces".

Since the thinner does not stay in the coating which the paint

produces, but evaporates entirely, it could be called an incidental expense item. It does serve to make easier the putting on; and it does help in securing a smooth, uniform effect.

The amount of thinner required by any paint depends partly upon the method we use for putting it on. Thus, for a spray gun, more reducing is necessary than for a brush; and for the quick-dip method, more thinner is required. Hence when pondering a change in painting methods it is well to remember that the thinner expense may also be different.

How to Compare Thinners

When comparing two or more thinners it is well to measure them, not only in regard to blushing, orange peel, set-up time and drying time, but also in regard to their consistency-reducing efficiency, their thinning effect. There may be considerable difference in this latter respect. For instance, most baking japans and some synthetic enamels may be reduced with either petroleum naphthas or coal-tar solvents, and the inclination is to use the cheaper kind. But a careful check-up, an all-the-way-through comparison, will in some cases disclose that it takes more of the petroleum thinner than of the coal-tar liquid to bring the viscosity down to the desired point. So, after all, there may not be so much difference in the costs.

And this is not the whole story. In such a case the paint that has been cut with coal-tar solvent—while it stirs and pours and sprays like the other lot—contains more paint and less reducer; it gives a fuller film, a thicker coat. It builds better and gives more finish. Cases are known where a shift in reducers has permitted the saving of a coat. Or, if the previous film thickness was satisfactory and no thicker coat is desired, then such a change in reducers may enable the spray man, with the same effort, to spray faster and turn out more pieces in a day's time. Hence this suggestion: To find out which reducer is best and cheapest it is important to make an all-the-way-through comparison.

Dip-Finishing Thinners

In dip tank installations there are other factors to be considered. The exposure due to material standing in a tank and the splashing of the dip operation tend to cause some enamels to deteriorate; this is true of enamels containing drying oils and certain resins. As this deterioration progresses the enamel becomes less and less soluble in the usual

"Bill, what's thinners and reducers?"

"Why Mose, that's what fat gals take to make 'emselves thinner."

thinners. And, if the mixture is not used soon, it may finally get to the point where the thinner is no longer able to keep it in solution. Such spoilage occurs sooner with some solvents than with others. Hence, in cases where the use of ordinary painters' naphtha or oleum spirits is permitting the breakdown of dipping paint, the admixing or substitution of higher solvency reducers may be advantageous.

Turpentine is useful for such admixing. Toluol and solvent naphtha are good reducers for most non-lacquer materials and, where their use cuts down spoilage losses or improves results, their adoption may be justified in spite of their higher cost.

New Solvents Available

Lately a new kind of solvent for paints is obtainable—nearly equal to the coal-tar liquids in solvency. In odor, wetting action and leveling it is better. The "hydrogenated naphthas" are helping finishers to cut costs.

For certain paint purposes the density of the thinner is of more than usual importance, as in finishes containing pigments that tend to settle out quickly; for example, dipping finishes made with aluminum flakes.

In cases where there is difficulty in keeping the paint uniformly mixed when painters' naphtha or oleum spirits (at specific gravities around 0.748 and 0.774, respectively) is used, a change to coal-tar liquids or hydrogenated naphtha No. 2 (both around 0.86) may prove helpful. The pigment particles may be expected to give less settling trouble. Results: Less stirring and better work.

Breaking up Settled Paint

When paint has settled to the bottom of the pail it is customary to pour off the liquid portion first before attempting to "break up the paste." In cases where the settled pigment mass does not respond readily it may prove helpful to add, not some of the poured-off fluid, but some reducer of especially high solvency.

When adding any thinner to any paint it may seem easier just to dump it in all at once; but there are cases in which this technique will cause the paint to "break," especially if the paint and thinner are cold. A very large proportion of all industrial paint troubles occur in cold weather.

Which Thinner for Which Material

Now in regard to which thinner with which material: Usually the factors of first importance in selecting a reducer (whether a single solvent or a blended liquid) are: 1) Solvency or viscosity-reducing efficiency; 2) Evaporation rate; and 3) Price. Point 1 has been discussed. Under point 2 there are several topics. Blushing or freedom from blushing depends partly upon the evaporation rate. Likewise, orange peel and waviness of surface can be controlled, within limits, by varying the evaporation rate. But sometimes, as may happen with enamels thinned with coal-tar solvents, the dried surface may have a waviness that persists even when the slowest liquids of this group are employed. In such cases a switch to hydrogenated naphtha may give a smooth effect; or the admixture of a small proportion of a pine

distillate may do the trick. And when the waviness has been eliminated it will be observed that there is another improvement in the finish. The paint will seem to have considerably greater hiding power. In case the suitability of a certain thinner for a certain paint is not known for sure, here is a suggestion: Try it. Proceed cautiously; use small quantities, carefully measured; and keep a record of the result.

Many finishers are mighty clever. The skill they have developed speaks volumes for their alertness, curiosity and powers of observation and deduction. They have few paint troubles; and they are quick to detect the occasional variations in a material, for which they can in many cases compensate satisfactorily — thus maintaining their production schedules. Should it prove to be a serious irregularity, they have caught it in time to summon the supplier before a costly situation develops. Such a man is valuable to his employer and is blessed by his paint house.

Secret of One Man's Luck

One old-timer I know is "lucky" with dipping japans. He rarely has trouble; turns out work of the very highest type; takes infinite pains; has found out a lot. For instance, he knows it takes several hours for a drum of japan that is very cold to become warmed to workroom temperature, so in winter he has it brought in from the storage house at least 40 hours in advance. That gives it overnight for warming. Then, into the reducing tank where the reducer (also previously warmed) is gradually stirred in. After thinning, he checks the density and the temperature by means of a Baumé hydrometer and a thermometer, and lets the black stand over another night before putting it into the dip tank (or spray gun). He rarely finds occasion to shout "Trouble."

While on this subject of paint shop skill it may be in order to venture this opinion, that the firm whose finisher has an open mind, an inquisitive nature, the desire to try for himself, the logic to arrive at correct conclusions, and the ability to acquire skill— that firm is to be congratulated.

Editor's Note: Write your own comments, suggestions or criticisms on, or additions to, this article. The best of those received will be published with your name, and paid for. This subject is of vital interest and importance to both manufacturers and users of finishing materials and solvents, and to men who represent them.

Industrial Inventories

If you are interested in obtaining information about all details of preparing for, taking and computing inventory in the modern industrial plant, write for a free copy of "The Physical Inventory Procedure of an Industrial Plant," addressing your inquiry to Wm. J. Barrett, manager of Policyholders Service Bureau, Metropolitan Life Insurance Co., New York, N. Y.

Book of Industrial Steel

If you are interested in steel, write for the new General Data Book, Section 5, addressing your inquiry to Joseph T. Ryerson & Son, Inc., at any of the following cities: Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Boston, Mass. The book contains 196 pages 4½x8½-in. with tables, charts, illustrations and specific information indexed and classified for easy reference.

« The Dangers of Rust »

by E. A. Zahn
Works Laboratory, General Electric Co.

The third of a series of 20 short articles prepared by the author.

RUST IS the cause of many paint failures on iron or steel. Assume that a 3,000-lb. casting is received in the factory in a rusty condition and that there is a great amount of machining to be done before final painting. Ninety percent of the area may be a machined surface, but the other 10% is still covered with rust. This small rust area may be on a lower side and almost unnoticed. Suppose it is then painted without any further thought of the small rusted portion. This piece of machinery or apparatus may remain exposed to weather conditions for several weeks before it reaches its destination and is finally installed in a place that isn't entirely free from moisture.

The paint used may afford very good protection against moisture, but no paint is perfect in this respect and, with rust creeping under the painted surface while being fed by moisture from the top, a pronounced paint failure will result very quickly—caused directly by the small area of rust which was not removed from the casting.

Many painters insist that paint applied over rust has very good adhesion. This is true, but of what use is adhesion to rust when the rust and paint both flake off? Some very responsible persons have made tests by painting two castings, one rusted and one in good condition, to prove that rust is harmless—putting them in a place where weather conditions are not too good. The answers are always the same. The rusted casting looked best after so many months, but another month always changes the story and satisfactorily answers the question about rust. A large piece of apparatus costing from $5,000 to $10,000 certainly must last more than two or three months.

I know of no method by which any metal that has rusted can be satisfactorily painted with regular painting materials, and it should be remembered that the entire job is no better than the poorest spot.

If there is rust present and it is not entirely removed before painting, it will continue to spread until it eventually forms a scale which lifts the paint film from the surface and then spreads rapidly over the remaining area. A condition of this kind can generally be avoided with a little precaution in the manufacture of the apparatus.

All paints to be applied to iron or steel are classified according to

their ability to prevent rust from forming under the paint film. While paints are being tested for various applications, they generally are considered as failures if rust appears before tests are completed. The creepage of rust must also be considered when selecting a priming paint. If a paint film has the ability to prevent rust from forming, it has only half accomplished its purpose. It must also prevent rust from creeping under the paint whenever the film becomes scratched or otherwise damaged.

There are many trick paints on the market that are supposed to utilize the rust which has already formed. Most of these are .... "sales talk," and are oftentimes of less value than the ordinary priming paints.

Rust is dangerous and must be removed before paint is applied. Otherwise, almost without fail, it will give trouble at a time and place where it will be much more difficult and expensive to refinish than in the shop where the original finish was put on.

Editor's Note: While we strongly indorse the author's recommendations about cleaning rust from iron and steel surfaces before prime coating same, we are not in complete agreement with what he says or implies about there being no merit to coatings advertised to be applied over rusty surfaces to prevent the spread of rust, or the cracking or flaking off of succeeding coats of paint. If the loose surface rust is carefully wire-brushed off and then certain penetrating coatings applied, followed by a good enamel or metallic paint, we believe the paint job will remain intact for at least a year or more during outside exposure or for several years when sheltered from excessive moisture conditions. We invite the comments of others on this subject.

Tumble Polishing with Sawdust

The use of clean, dry sawdust in the tumbling barrel, where small parts are being handled for polishing, cleaning, or drying after cleaning, is a feature well worthy of study. It could be used to good advantage in more places than are using it at present.

Sawdust may be used either alone, or in connection with other small pieces to act as polishers. Where inside corners or recesses are to be polished, a mixture of sawdust with larger pieces of wood, leather, or other polishing agents is very helpful. Of course, where sawdust alone will do the trick, there is no point in mixing it with larger objects.

Sawdust is easily removed from parts as they come from the tumbling barrels. One method is to dump the barrel charge on top of a screen having a mesh sufficiently large to release the sawdust to a receiving bin below, but retain all the parts.

Another method is to use a screened suction hose or pipe to draw the sawdust from the parts as the batch is poured from the tumbling barrels. The sawdust is returned to a supply bin.—J. E. HYLER.

Striping tools of several makes are now available at prices easily within the reach of individuals or concerns that have use for them.

Photograph, Courtesy of The DeVilbiss Co.

Varnish and Lacquer Finishes for Furniture

by T. R. Nall

WHEN LACQUER was introduced into the furniture industry, mass production soon followed. Furniture was finished one day and shipped the next—sometimes the same day. This new lacquer finish was different from the old varnish finish that called for a finishing schedule of from five to seven days before the furniture could be shipped. People who buy good furniture were taught that when they purchased a bedroom suite or other furniture, they would find this new finish far superior to the old varnish finish. Why? Because it did not deteriorate or check like the old varnish finish which they had been accustomed to for so many years.

But the consumer, in turn, brought up this point: "This new finish doesn't have the luster or depth that the varnish finish has. How come?" The answer was: "If you wish to have a *lasting finish*, you will accept this new lacquer finish."

We know that, as a rule, lacquer finishes do not look as nice as a new varnish finish, but lacquer will look the same ten years later. Varnished furniture, after two or three years, usually begins to check and hair line, which gives an unsightly appearance. To restore this checked-varnish-finished furniture back into first class condition, one has the expense of refinishing. Knowing this, the consumer is generally willing to forego the high luster and depth of a varnish finish for the dull, lasting lacquer finish. The consumer had to be taught this, and when the furniture industry had put this idea over successfully, production went wild for a time.

But now the story is changed. With varnish sales off in volume, the best varnish chemists were told they had to improve on varnishes before their companies could hope to sell any more. New specifications were given to the chemists. They were along the lines of lacquer.

"We must have a varnish that is print-proof in two days, will rub well in two days, and will not check as the old varnish did. We must have a flat varnish that will dry over night and can be packed and shipped the next day."

All this and more has been accomplished. Accordingly, varnish has come back into the furniture industry, but it's a greatly improved varnish—so improved that lacquer has lost ground rapidly. Furniture buyers wanted the high luster and depth finish when they were assured that they could have a lasting finish also.

The lacquer makers, in turn, decided they must produce a finish having more depth and luster. In order to do this they had to build up the solids of lacquer. This slowed up the drying time; the lacquer could not be rubbed any sooner than a new quick-drying varnish. So now there is no advantage in using lacquer instead of varnish, as far as production is concerned. The new type varnishes of today will do practically "everything," and they have every merit that lacquers have, so it is now largely a matter of personal choice which to use—and thanks to both finishes, we are seeing better finished furniture.

To bring out the beauty of attractive veneers, the furniture manufacturer has to apply a suitable finish in the proper manner.

If you will look around and take particular notice of the beautiful finishes we have today, I know you will agree that both lacquers and varnishes have been improved 100% during the past two years.

Editor's Note: You are invited to write your comments or criticisms on this article, which was prepared and sent in by an experienced finisher who has been foreman finisher, and is now with a manufacturer of finishing materials.

Booklet About Pooling Patents

A booklet entitled "A Horrible Example of Pooling of Patents," which is part of important data furnished to Committee on Patents, House of Representatives, 74th Congress, has been prepared for distribution by Mr. A. F. Jenkins, President of The Alexander Milburn Co., Baltimore, Md. This booklet, according to Mr. Jenkins, "points out the method employed by a corporation to pool patents to the decided disadvantage of the small inventor and manufacturer."

« Getting Ahead »

by Daniel Youngs

Editor's Note: The simple matter of getting along with others through the exercise of more clear thinking, more courtesy and patience, helps to elevate men to higher positions and promotes greater shop efficiency. One of our friends who has advanced himself from a finisher to foreman finisher, and then to general manager of the firm recommends this article.

IMMERSED IN our daily work as finishers and finishing foremen we are likely to become obsessed with the idea that our duty to the firm and to ourselves consists only of "finishing." We have little time or inclination to step back and view the operations of our finishing department as they really are—an integral and vital part of the successful operation of the entire plant. We get into a rut, thinking of our department as an overly important isolated unit devoted solely to proper finishing . . . . failing to realize that as finishers we are but a thread in the rope of the entire plant. Yes, without our excellent workmanship in finishing, probably there would be no sale for our company's products; but without jobs sent to us to be finished, we would have no work, no income.

Briefly and roughly, the shop contacts of the finishing department may be divided into two parts: Our inter-plant contacts as they affect other departments of the factory, and our contacts or relations with outside firms or individuals which not only affect us individually, but which affect our department and firm as well.

In all manufacturing plants there is a continuous progressive movement, starting with the entrance of raw materials to the first operation, and ending with

"Our finishing foreman is too busy to see you, and besides he doesn't do the buying anyway. Send us a sample of your goods and we'll try it out some time."

"Hey you! Take that junk back and tell that blankety-blank cabinet boss I'll not accept it 'till it's patched, puttied and sanded smooth."

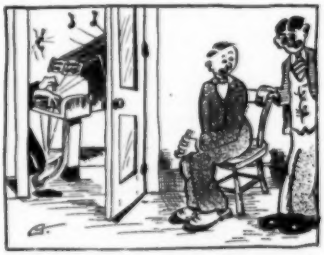
packing and shipping the finished product. Complete cooperation and coordination all along this line of operations are not only desirable but necessary. Otherwise there is danger of a loss of proper functioning, without which no firm can be successful. As a piano manufacturer says, "If there is no harmony in the factory, there can be none in the instrument."

In the successful completion of a product, the finishing department is quite important. Its contacts or relations, both personal and mechanical, are more intimate and more easily conducted in agreement or disagreement with other departments . . . . but in a number of factories the finishing department is usually at logger-heads with those preceding departments where the products are machined and fabricated. For example, in a woodworking plant, too often the cabinet department permits poor workmanship or defective materials to be passed on to the finishers, feeling that they will make it right. They can putty up nail holes, fill open joints, smooth out rough surfaces, scrape off surface glue, etc. Sure, the finishers can do it, but this places upon the finishing department an added burden of time, labor and cost which is rightfully chargeable to the cabinet department.

In metal industries the finisher often complains of the condition in which castings, pressed metal parts or fabricated products arrive in his department . . . . Another problem which probably will be with us always.

Then there is the purchasing department always trying to reduce production costs by asking or demanding that the finishers use cheaper materials, supplies and equipment. And there is the jealousy with which some purchasing agents view the acquaintanceship or meeting of certain finish salesmen with the finishing foreman. All hoss dust! Unnecessary; yet from things like this come lack of cooperation between important departments of the plant.

Another essential inter-plant relationship, which is vital to the



"The Professor don't seem to get any harmony out of that piano."

"No wonder! There ain't any in the factory where it's made."

FOR TOY DUCKS OR LIMOUSINES

Lacquer—regardless of the quality desired or type of product to be finished—can always be *made and used most economically* when formulated with Butanol and Butyl Acetate. Practical experience in scores of factories and finishing plants has built a convincing case for these ideal lacquer solvents. Not only do lacquers formulated with Butanol and Butyl Acetate cut manufacturing costs, but they materially improve the appearance of the finished product as well. Whether you are a lacquer producer or a lacquer user, you can depend on Butanol and Butyl Acetate to save money—give better results—and increase your profits!

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very success of the plant as a whole, is that existing between the finishing and sales departments. The success of sales depends almost wholly upon the finish, for regardless of how appealing or attractive the design may be, or how carefully the products have been machined, if the finish is poor and shoddy, there is an immediate obstacle to effective sales.

In establishments where the finishing foreman is permitted to meet salesmen and make selections or purchases of finishing materials, supplies or equipment, there exists a relationship with outside firms and contact with outside sources of information that can mean a great deal to the success of the company.

If the foreman is allowed to sift out those salesmen worthy of consideration and those who for certain reasons are unable to sell him, the P. A. will be saved considerable time, and the finisher foreman will be benefited by keeping in touch with new ideas and new finishes.

Of course, it should be taken for granted that the foreman, being a busy man, has little or no time to waste in listening to sales talk unless he is led to believe that his firm, or he personally, will derive some benefit. So the wise man gives each salesman all the time he can reasonably and courteously afford.

Obviously, it is impossible to allot any specific time to each salesman for an interview. If there is information to be obtained, the interview can be longer, but if the sales talk is simply one of general statements to the effect that the salesman's firm makes the best finish in the world and will save money, etc., the time must be shortened.

Another thing by which the finishing department is judged is the manner of handling complaints. If the finishing material is believed to be defective—not up to standard—there is a possibility that the materials were really not at fault. It is not always right to call the finish salesman and tell him his product is "no good." Contact him in a friendly manner, state the trouble, and suggest that either he or an expert from his firm trace the cause.

These are but a few of the finisher's more important shop contacts. Every reader can easily call to mind many others. If every finisher will only realize that when he contacts anyone away from his own particular department, he is representing not only his department and himself individually, but his firm also, perhaps less friction will be present. And all good finishers know that excessive friction will ruin any finish—or any finisher.

Hercules to Manufacture Cellulose Acetate

Negotiations have just been completed between Hercules Powder Co., of Wilmington, Del., and the I. G. Farbenindustrie Aktiengesellschaft, of Frankfurt, Germany, by which Hercules comes into control of the American patents covering the I. G. processes on manufacturing cellulose acetate.

M. G. Milliken, general manager of the cellulose products department, stated that Hercules expects to be in quantity production of flake cellulose acetate by this December. The experimental and pilot units at the company's extensive cellulose products plant at Parlin, N. J., have been running successfully for several years and a material of high quality with improved properties is being produced for the trade.

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The next time you are in the market for a finish call on EGYPTIAN. We will be happy to discuss the matter with you.

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FINISHING MATERIALS AND FINISHING METHODS USED IN

Electrical Insulation—II

by J. W. McHugh
Schenectady Varnish Company

This part of the article deals with methods of applying the varnish (brushing, spraying, dipping, pullling a vacuum in coils before impregnating, etc.) baked finishing temperatures, ovens for baking and methods of testing electrical insulation varnishes.

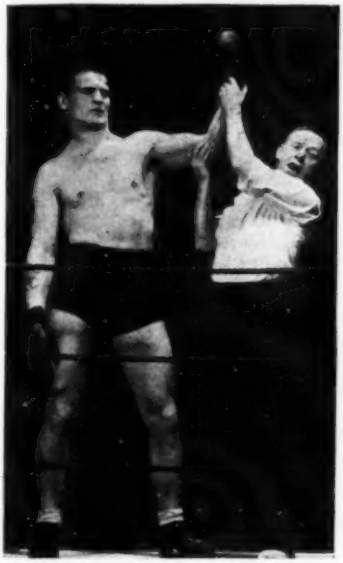
In Part I, which was published last month, our author discussed the various characteristics and requirements of clear and black varnishes (baking and air-drying) for use in the several kinds of modern electrical insulation.

THERE ARE several reasons why a varnish is used as an insulating material with electrical equipment: 1) Because of its filling and saturation action and its high dielectric strength, it materially raises the dielectric breakdown value between various parts of the coils and effectively insulates the coils from the motor frame, thus permitting high voltages to be used. 2) Because of its binding and sealing properties, it prevents the entry into the coils of moisture which will cause a breakdown in the insulation and so put the motor out of commission.

To attain the above conditions it is necessary, of course, to use a varnish that will give the desired characteristics and one which can be properly applied to the coil.

There are two ways of doing this: 1) brushing or spraying the varnish on the coil, and 2) by dipping or some variation of this method. Brushing is not satisfactory as it leaves the varnish on the surface only and not inside the coil where it should be.

The best and most widely used dipping practice is as follows: Coils are preheated at a temperature of 225 to 250°F. long enough to completely drive off the moisture. This varies from an hour, with very small units, up to 24 hours for some of the largest apparatus. The coils are then immersed in varnish until bubbling ceases. The varnish should be reduced to a body which will give complete penetration to all parts of the coil. The coils are then removed and allowed to drain for some time. They are then baked



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Rockford Varnish Co.

ROCKFORD, ILLINOIS

at a temperature of 225 to 275°F. from 2 to 24 hours, time again depending on the size of the coil, and the draining properties of the varnish. Usually it is not advisable to bake very long at a temperature in excess of 270°F., as above this point there is a tendency to char the cotton insulation. However, in certain motors which are very heavy, the effective baking does not start until the whole iron mass has reached a temperature in excess of 212°F., so a higher temperature may be used to more quickly reach this point.

For very large units or for coils that are very tightly wound, the above treatment may not completely insulate the inside of the coils due to the inability of the varnish to penetrate a dense mass. Here, the coils may be impregnated under a vacuum to get better penetration. The coils are preheated until all the moisture is removed, this being done under a vacuum if the moisture does not escape easily. The coils are then placed in the impregnating chamber and a vacuum of 28-29-in. of mercury is pulled on the tank. The varnish is then allowed to flow into the tank until the coils are covered. After bubbling ceases the vacuum is broken, the varnish removed, and the coils are allowed to drain. Under no circumstances should pressure be used on varnish, as this often causes some very bad explosions.

Baking Practice

One of the prerequisites of good insulating practice is that the varnish must be well baked inside the coil. If wet varnish is allowed to remain in contact with enameled wire, it may attack or soften the enamel film, so that shorts occur. Also, in rotating apparatus, any wet or undried varnish will be thrown off, clogging the air gap between the pole pieces and the rotor.

To get a well baked job, great care must be taken to obtain the best possible oven conditions. Ovens in general are of two types —stationary or box, and continuous or conveyor, the box type oven being more frequently used due to its flexibility.

It is now a well accepted fact that for all types of coils, an initial bake of 120 to 150°F. does much to promote internal drying and removal of solvent. An initial bake of 250°F. tends to surface dry the varnish which forms a skin and so prevents any further removal of solvent and the oxidation of the varnish base in the coil. For small coils this initial bake is not necessary. Recently there has been some very interesting work done in baking coils, first in an atmosphere of nitrogen or carbon dioxide. These non-oxidizing gases act as a carrier for the solvent fumes and effectively prevent any oxidation of the varnish base. After the solvent ceases to come off, the atmosphere can gradually be made oxidizing, thus completing the whole cycle and completely drying all the varnish.

Types of Baking Ovens

The source of heat is usually steam or electricity, with steam the more common. [Gas and oil-heated furnaces are also used.] The oven should be so designed that the solvent fumes can be readily removed and plenty of fresh air admitted. Care should be taken to eliminate any hot or cold spots which will cause non-uniform baking. These can be lo-

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cated with pyrometers or maximum reading thermometers.

Many of the larger ovens are designed with a recirculating draft system which returns to the oven a large part of the exhaust gases mixed with some fresh air. As the baking progresses, the amount of fresh air added can be cut down. During the first part of the bake, when the fume or solvent concentration is high, almost all the exhaust gases should be allowed to escape, but later, when the gases are solvent free, only a small amount of fresh air need be added. This type of oven is very efficient as it costs less to heat because it utilizes part of the heat of the exhaust gases. It also eliminates most of the local heating due to the forced circulation of the oven.

Conveyor ovens operate on much the same principles as the box-type ovens, except that the work passes through the oven on a continuous chain. Here again, both steam and electricity [and gas] are used for heating. Conveyor ovens are generally quite efficient but can best be used only when the production on similar lines is quite large. They are not well adapted to a variety of work. There are now several oven makers specializing in the manufacture of equipment for the electrical industry. Due to their energy and efforts, material improvements in design and practical ability have resulted.

Methods of Testing

Prior to 1920, no well defined laboratory methods of testing and comparing various kinds of insulating varnishes had been devised. Most consumers bought their varnish on "how it worked," and on the salesmen's word for the various qualities. In 1921 the American Society for Testing Materials issued their "Tentative Methods of Testing Insulating Varnishes" designation D115-26T. This, for the first time, presented methods agreed upon by representative manufacturers and consumers, and detailed tests for the various properties of varnishes. These are listed below.

1) Specific gravity
2) Viscosity
3) Flash point
4) Time of drying
5) Dielectric test
6) Water absorption test (wet dielectric)
7) Heat endurance test
8) Acid and alkali test
9) Oil-proof test
10) Draining test
11) Evaporation test
12) Test for non-volatile matter

These tests have done much to clear up the whys and wherefores of insulating varnish. The insulating problems of today are many and complex but with any sort of cooperation between the varnish maker and the electrical manufacturer, the problem can eventually be solved. Nearly all the varnish companies now employ a well trained laboratory staff which is continually working to produce new varnishes and to improve the old.

Reliance Varnish Company Plant Enlarged

An addition to the plant of the Reliance Varnish Co., Louisville, Ky., has just been completed. The first floor will be devoted to customers' service, the space being occupied by a "Veneer-ite" studio necessitated by the increased volume of business on this process and product. A grinding department will occupy the second floor, while the basement will be used for storage.

Petroleum Diluents and Solvents

by G. L. Hardy

ASPHALTIC CRUDES from new California fields have contributed many astonishingly successful new diluents and solvents for all branches of the paint game. These new fields, and new methods of refining, rate the Coast products far above the Russian fields of war fame which furnished so much toluol for wartime use. Even the asphaltic oil fields of the southwest are not selective enough for this particular use. Paraffine crudes are too hard to refine grease free, to be worthy of mention or serious consideration.

These selected California crude oils now furnish the very finest diluents, petroleum alcohols and light-run thinners. In these light-run solvents we find the composition about 40% toluol and the balance light-run solvent.

It is justly suspected that many of cheaper-priced western-made thinners for lacquer are almost entirely composed from this single petroleum run, with just enough foreign odor added to fool most of the paint consuming public. These petroleum spirits blend equally as well as their coal tar and grain-mash brothers. Properly blended with the latter two

"The writer's experience with these materials has been practically unlimited and in every instance success has been easy, due more to the foolproof and excellent qualities of the petroleum compounds than to the experimenter's ability."

mentioned spirits, perfect catalyst combinations are readily perfected and powerful cutting and smooth flowing characteristics are the result.

The most important features are:

1) Non-gelling reducers for asphaltic and Gilsonite vehicles.

2) Perfect reducing medium for flatting wall paints.

3) Non-toxic, in almost every case.

4) A real success for brushing lacquers.

5) Will not raise wood fibers.

6) Petroleum alcohols are miscible with shellac reducers.

7) Synthetic enamel reducers of great excellence, except where synthetic vehicles are so formu-

lated for coal-tar reducers only.

8) Improves the flow, speeds drying and retards gelation in the dip tank.

9) For spray-work house paints, long and short oil enamels and oil primers reduce perfectly. Select one that will not gel the vehicle.

10) Drying time is most often shortened without impairing flow.

11) Passes government specification in many cases where coal-tar and other products are excluded.

12) Soon we may expect certain limited types of petroleum acid paint-removers free from wax masses.

We might now class base oil or 10-P thinner as obsolete and only fit to be used in a baking finish, stains, roof paint, or paint pot wash. These fast-drying greaseless petroleum reducers cost so little more than base oil that the reduced cost of the latter mentioned is of minor consideration.

The writer hopes that in the near future he may have the opportunity of presenting a complete and comprehensive treatise of petroleum paint products in collaboration with the chemists of California's oil industry.

All major California oil companies make one or more of these paint reducing products, and I am sure that their chemists will cheerfully give you much more astounding information than is listed in this brief article.

Some interesting comments offered by our good friend, Mr. K. N. Kathju, Consulting Chemist in the Automotive Division of the Arco Co., Cleveland, Ohio, and Detroit, Mich., are as follows:

Mr. Hardy's article on the above subject is very appropriate and to the point. Brief as the article is, it has a world of information about petroleum diluents and solvents which really have merits.

The article deals with petroleum fractions which have found wide acclaim in the paint industry during the past year, in that these petroleum fractions are relatively high in aromatic-hydrocarbons and some have practically the same evaporation as toluol. Their other chief characteristics are their clarity of color; that is they are water-white and extremely low in sulphur content.

Because of their relatively high aromatic-hydrocarbon content, these have been adopted almost universally by the paint industry as substitutes for straight toluol, light naphthas, and mixtures thereof, because of their excellent solvency and low evaporation range for paint and synthetic resin content formulations and as diluents for lacquers and lacquer thinners.

In the lacquer industry the material has been used very successfully, eliminating straight toluol or straight naphthas or both, because these petroleum diluents and solvents have better tolerance in nitrocellulose solutions, and also because of their relatively low "end-points" and freedom from greasiness which is so characteristic of naphthas. In industrial and maintenance paints these have likewise been preferred because of their excellent solvency which permits better brushing and better flow after brushing than the use of conventional naphthas; and straight naphthas ordinarily do necessitate what is commonly called "sweetening" by using either straight aromatic-hydrocarbons or preferably turpenes which are more expensive to use.

As far as synthetic resin type finishes are concerned, until lately the usual non-volatile content consisted of certain percentages of aromatic-hydrocarbons such as toluene, xylene, solvent naphthas, etc., which are good solvents for glyptal type resins. Mixtures of these aromatic-hydrocarbons with petroleum naphthas are high in price, and there are difficulties in using the proper proportions of these various constituents due to certain tricks; that is setting up, flowing (as a result of brushing or spraying) necessitating a lot of work in the laboratory to get balanced blends of certain physical characteristics. With the advent of these special petroleum fractions from California fields, the use of various mixtures of aromatic-hydrocarbons and petroleums has been limited to the few who have

SPOTTING OUT

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neither run across these special petroleum fractions nor have had the time to investigate their special features which are so numerous, in my opinion, that they warrant their use in the paint industry in general.

In passing, I also want to mention that occasionally it has been difficult and well nigh impossible to obtain shipments of such important solvents or diluents or toluene, and xylene, and in my personal opinion, the advent of special petroleum fractions is a godsend not only to the manufacturers of synthetic resins but to the consumers of such synthetic resins—the paint industry in general.

I hope that sooner or later chemists working along these lines on the Pacific Coast will present to the reading public more comprehensive articles, both technical and non-technical, so the industry in general and the consuming public in particular will get better acquainted with their products.

Air-Operated Controllers

An attractive folder just issued by The Brown Instrument Co., Philadelphia, Pa., illustrates and briefly describes the features of Brown air-operated controllers recently introduced by this company.

Metal Products Exhibit of Fine Lacquered Lamps

The accompanying illustration shows the display of The Stanley Chemical Co. at the Metal Products Exhibits, Rockefeller Center, New York, N. Y.

This is a permanent display in which from time to time will be shown various products in the metal, wood, rubber, paper and textile industries, finished with Stanley industrial coatings. Articles on display in the illustration are lamps loaned through the courtesy of the Greist Mfg. Co., New Haven, Conn. . . . finished with Stanley 1617 Clear and 55A-2 Gold Dye lacquers.

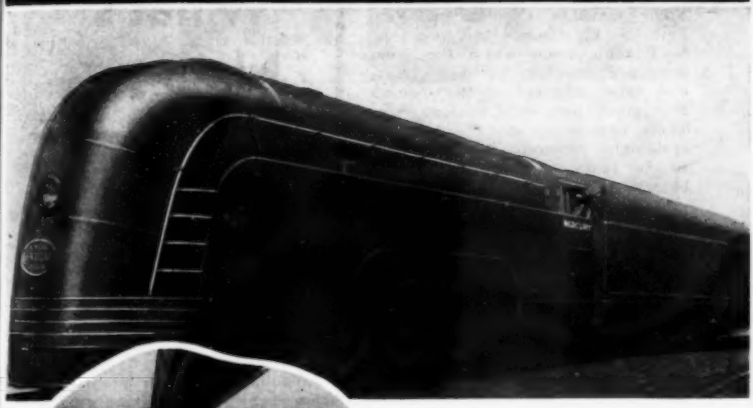
The designing of the booth and the arrangement of the display was under the supervision of Mr. Fernand Aubry, a prominent New York designer.

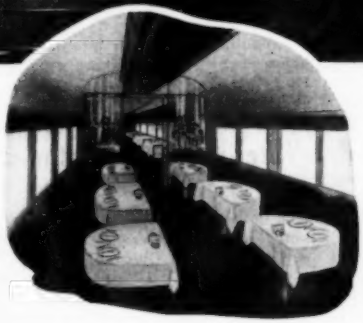
The Metal Products Exhibits, Inc., has taken a large section of the third floor of the International Building, Rockefeller Center, in which are shown permanent displays of leading manufacturers in the metals and allied industries. These exhibits are open for inspection to anyone interested in metal products and their finishing.

In conjunction with the permanent displays there is a meeting room or small auditorium accommodating 250 people.

View of the Stanley Chemical Co's attractive booth at the Metal Products Exhibits, Rockefeller Center, New York City. The firm maintains a permanent exposition here.

NEW YORK CENTRAL'S *MERCURY*





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What's New « «

New Resin for Lacquers

The Bakelite Corporation, New York, N. Y., announces a new type of Bakelite resin which has been developed especially for use in cellulose ester lacquers of the modern high gloss, high solid content type. These new resins are the result of systematic research, extending over several years, in which the primary object has been to overcome to the greatest practical degree the recognized defects of lacquers previously available for certain exacting requirements. Chief among these has been the difficulty of obtaining a smooth, high gloss surface without the necessity of incurring additional expense for rubbing and polishing operations.

The new resins, in combination with nitrocellulose, yield lacquers of exceptional flow and gloss. Their high refractive index and excellent pigment wetting produce a most attractive depth and luster. The initial high gloss is retained remarkably well on exposure to weather and even after long service these finishes may be cleaned and repolished with little effort. In addition to this important property, these resins offer resistance to moisture, oxidation, strong soaps, acids, oils and greases, and have an excellent degree of color stability. Their solutions in common lacquer solvents are very low in viscosity, permitting the formulation of high solid content lacquers having excellent film building properties.

Tarnish-Proof White Metal Leaf

Palladium leaf, for decorative finishing, is a new durable, non-fading, white metal similar in color and properties to platinum. It is used in much the same way as gold and silver leaf, being laid with ordinary sizing on leather, fabrics, wood, metal, glass, stone or composition materials, and it is adaptable to interior or exterior decoration; has excellent wearing qualities; is resistant to all but concentrated nitric acid; may be matte finished or burnished to a brilliant luster; is available in commercial sizes, in pack, roll or sized form; has a high melting point (2829°F.); is 20% lighter than 18-K gold, and is only 1/250,000-in. in thickness.

Palladium leaf is a product announced by W. K. Kemp Co., 350 Hudson St., New York, N. Y.

"Sterilkote"—Synthetic Enamel

In describing their product "Sterilkote," Bradley & Vrooman Co., 2629 S. Dearborn St., Chicago, Ill., say:

"Visualize if you will, a sheet of metal coated with vitreous-like enamel, but elastic enough to permit bending, stamping, or even drawing without cracking or marring the finish; then you will have a general idea of the qualities of Sterilkote.

"In white, colors or amber clear, Sterilkote is extra glossy and very hard, yet not in the least brittle, and it adheres to the metal surface over which applied more tenaciously than any other finish we have ever tested in our 56 years of paint experience.

"As a liner for beverage or food containers, Sterilkote has no equal, because in addition to its non-porous toughness, it is absolutely non-toxic, odorless and tasteless.

"While primarily designed as a liner, Sterilkote, because of its attractive gloss and extreme rugged-

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BRONZE POWDERS

YOU can save MONEY by using SUNBRITE SILVER BRONZES.

Same coverage obtained by using 33 1-3% less powder. (4 oz. per gallon.)

More mileage—33 1-3% more area covered using same amount as old type coarser powder and lacquer (6 oz. per gallon).

25% less lacquer used to cover same area, which means your product is improved at a saving of 25% to you. These Sunbrite Silver Finishes are available in all shades, from the rich bluish cast of pure silver plate, to the golden white of butler silver.

Write today for a four-ounce sample sufficient for a gallon of your clear lacquer or one-half gallon of varnish, or send us a small piece of your product to be finished and returned with complete information.

DO IT TODAY!

The Mitchell-Mayer Co., Inc.

Complete Industrial Bronze Powder Finishes

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ness, has also established itself as a finish for metal surfaces that are subjected to extremes in exposure and hard usage, such as washing machine lids, special types of dispensing cabinets, laboratory tables, etc. For these uses Sterilkote can be had in a number of attractive shades."

"Rust-Tox" Paint for Rusty Iron

The Skybrite Co., Cleveland, Ohio, announces "The Rust-Tox Method of Repainting Rusted Metal." According to the company's literature, the rusty iron or steel surfaces are prepared by wire brushing to remove loose rust and old paint, if any. Any traces of grease or oil must also be removed. Rust-tox can be applied by brushing, spraying or dipping.

Rust-tox is a heat-blown blend of completely dehydrated fish and tung oils. It crawls into every tiny pore of the surface and extracts the moisture content of the rust. This turns the rust into chemically inert iron oxide and actually makes use of the rust present to form an oxide bonded coat.

Rust-tox is the consistency of linseed oil; does not harden or check; maintains a firm elastic coating that is not affected by weather or by expansion and contraction of metal; can be furnished in clear, red, green, gray, black and brown; is an excellent and approved vehicle for aluminum flakes and paste; sets to touch in two to four hours. Sets firm in 24 to 36 hours; withstands fumes from acids and alkalies and heat up to 550°F. Can be used as a primer, spot coat or finish coat.

Electric Marker

The Ideal Electric Marker, illustrated here, is a portable electric tool which can be used for marking practically any material—including

"Writes like a pencil."

hardened steel, glass, pottery, hard rubber, bakelite and fiber. The instrument is 6¾-in. long and weighs 2-lbs. It requires no cabinet, auxiliary controls, rheostats or transformer for operation. The point does not stick into the marking surface. It makes permanent lines, cut right into the surface. . . . A product of the Ideal Commutator Dresser Co., 2033 Park Ave., Sycamore, Ill.

Smaller 1,000-Watt Lamp

To meet the demand for higher levels of illumination in factories, the Westinghouse Lamp Co., Bloomfield, N. J., announces radical changes in the design of its 1000-watt Mazda lamp.

An important change is the new T-24, inside frosted Pyrex bulb. Tubular in shape and about half the size of the 1000-watt, PS-52 bulb Mazda lamp now used for the general illumination of large industrial installations, the new lamp will permit the use of smaller reflectors and accessories, thereby contributing to

COMING!

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lower installation cost. The Pyrex bulb will better withstand water or moisture breakage. The heat of the filament will not bulge this heat-resisting glass.

A specific structural member has been incorporated within the bulb to collect and localize the tungsten blackening and thereby assure maintenance of higher lumen output and efficiency throughout its operating life. As the filament sublimates during burning, the tungsten metal vapor rises with the heat and condenses on the surface of the wire mesh which is located at a point where little of the light is intercepted. This minimizes the gradual depreciation of the light output throughout life, which is a serious problem in the conventional high-wattage lamps.

The new bi-post lamp is designed for 110, 115 and 120-volt service, has a maximum overall length of 9½-in., a light center length of 5½-in., and its rated life is 1,000 hours.

Rubber Paint

A letter from Collord, Inc., 1430 Rosedale Court, Detroit, Mich., announces "Surfaseal," the true rubber paint. Apply to clean metal, preferably etched or sandblasted, by brushing or dipping. Dry well between coats. After 48 hours start your tests. Surfaseal may be used on concrete to prevent moisture and acid penetration.

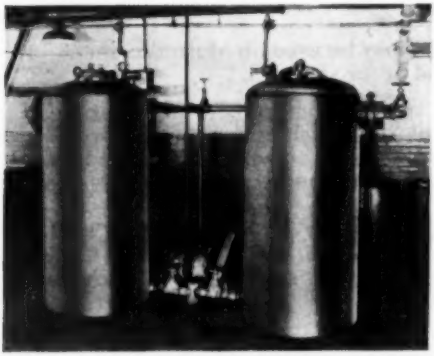
According to the manufacturer, Surfaseal is immune to caustics; has high resistance to acids; an unusually efficient corrosive inhibitor; bonds well to rough surfaces; covers 150 to 200-sq.ft. to the gallon; No. 1 can be had in industrial grey or black. Colors can be supplied in drum lots only at this time.

"Should you have a specific insulation problem, we are at your service in aiding in its solution. Just give us the facts."

Sound Deadening Equipment

The accompanying illustration shows a typical installation of new sound-deadening tanks in a large automobile body plant—an installation by Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill. These tanks are designed especially for spraying sound deadener on car bodies, but have a wide variety of uses in other fields.

Sound deadener tanks are usually arranged in pairs in order that spraying may be continuous, even while one of the tanks is being filled. A compressor of 1-hp. capacity, 2-stage is furnished to maintain sufficient pressure on the material in the tanks. A transfer pump draws the material from its original container and transfers it through piping and a strainer, to the tanks.



Since sound-deadening material is very viscous and heavy, it is necessary to apply high pressure to the tanks in order to force the deadener to the point where it is applied. These tanks will sustain as

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Larcoloid is now being successfully used on practically all sorts of products and for maintenance protection on equipment and buildings.

Larcoloid has been the answer to all kinds of finishing problems. We will welcome the opportunity to tell you more about this sensational finish. Send us your inquiry.

Larkin Co Inc. **PAINT DIV., Buffalo, N.Y.**
Manufacturers of Primers, Enamels, Varnishes and Japans

much as 220-lbs. of working pressure. Each tank has a capacity of 125 gallons. These tanks have delivered as much as 1½ gallons of material per minute through approximately 100-ft. of 3-in. pipe. Pressure variation in the tanks is from 160 to 200-lbs., and to maintain this pressure the compressor operates about one-half of the time.

Synthetic-Resin Adhesive

A new thermo-setting synthetic resin combining astonishing values in short time and low temperature of reaction with other exclusive properties, is just announced by I. F. Laucks, Inc., Seattle, Wash., manufacturers, (Merritt Engineering & Sales Co., Inc. of Lockport, N. Y., Eastern sales agents). This new combination of properties extends the march of synthetic resins into the adhesive field. This product is patented as a new form of matter under the trade name "Lauxite."

Lauxite is derived from the newly discovered reaction of zinc chloride, urea and formaldehyde. Due to the characteristics imparted to the material by the zinc chloride, this resin differs radically from the usual phenolic or urea resins. The resin is a fine white powder, packed in steel drums and sealed tight. Unless opened and exposed to moist air over a period of time, or stored in close proximity to radiators, etc., its adhesive and thermo-setting properties do not deteriorate . . . . is dispersible in water, no other solvents or chemicals being needed . . . . sets up in a few seconds at a temperature of 225°F. and will react as low as 180°F. When used as an adhesive, perfect bonds can be formed even in the presence of moisture, and at the low temepratures employed no steam blisters will result.

Because it is without color, slightly acid and sets up transparent, it will not stain. The bane of older adhesives, glue stains, is eliminated.

Lauxite will carry a large percentage of filler and can be dyed or pigmented with neutral or slightly acid dyes or pigments.

This product, while primarily developed as a base for veneer and plywood adhesives, has such unusual properties as to suggest extended usefulness in other fields. Paper and textile sizing and coating, paper laminating, special applications in high speed molding of small articles, as well as a variety of miscellaneous uses are being developed.

Stencil Cutters

The accompanying illustration shows what is called the "Master Bi-Cutter 5-in-1 Silk-screen Tool" for cutting single or dual parallel lines. The removable threaded heads

have sharp steel blades suitable for cutting paper, film, celluloid, etc. When mounted in the pencil-like handle, the blades can be easily manipulated to cut curved, circular or straight lines. Different spaced blades are available . . . a product of Moore Air Brush Co., 4609 Grace St., Chicago, Ill.

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A MASTERPIECE — the pinnacle of achievement by the Binks Manufacturing Co., for the paint spraying industry, the THOR Model 7 Spray Gun — the ultimate in design, quality, precision and performance.

Skillfully engineered, after giving sound and practical consideration to all phases and problems of the spray gun users of this country. Includes the suggestions from engineers of some of the largest industries, where smart finishing must be obtained at the lowest possible cost.

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To Kill Sun Glare, Tint Windows

The Truscon Laboratories, Milwaukee Junction, P. O., Detroit, Mich., announces two forms of "Opaltone" for tinting window glass to kill sun glare and still admit more than 90% of the daylight—a diffused, soft, restful light. One form is permanent and durable for brushing or spraying on the inside or outside of window glass, and the other is a removable coating for use on the inside. Both are furnished in either blue tint or white. According to the company, room temperatures are reduced as much as 10 to 15 degrees through the use of Opaltone.

The permanent form of Opaltone, is said to be tough, durable and impervious to weather; will not rub off or flake.

Korolac for Covering Plating Racks

"Korolac" is a solution of "Koroseal," a new synthetic rubber-like material developed by The B. F. Goodrich Co., Akron, Ohio. Korolac is recommended as a covering for plating racks and is adapted for application by the user. It provides a translucent, corrosion-resisting, tough, inert coating with good insulating properties, satisfactory for all kinds of plating service.

At normal temperatures, Korolac is jelly-like, but when heated it becomes liquid, in which state it is ready for use. It holds its position on racks because it shrinks on cooling—therefore racks should have no sharp edges, ends or corners. It does not adhere to other materials, therefore it cannot be used for coating plane surfaces. Korolac is not affected by, nor does it harm, plating solutions. A Korolac film is very tough and elastic—subject only to damage by severe physical abuse. If the film is broken it can easily be repaired which is important.

New Air-Conditioning Compressor Plant

The rapidly growing air-conditioning business has made increased facilities and production line methods necessary for the manufacture of medium-size compressors. Approximately $500,000 is being spent by the Westinghouse Electric & Mfg. Co., in equipping and developing a 40,000-sq.ft. factory at Springfield, Mass., to manufacture a new design of compressor particularly for air conditioning use.

The factory is located in a one-story saw-tooth type building and is being equipped with the most modern machinery. It is laid out to most economically produce the hermetically sealed compressors and self-contained room cooling units. The castings and raw material enter the factory at one end and progress through the various finishing operations. The center aisle is used to make the parts, after which, they are assembled with the finished castings and housings in an air-conditioned, dustproof assembly room. After being tested, the equipment is boxed and warehoused ready for shipment.

Colored Hardware Sets

To harmonize with the brightly colored kitchen utensils furnished to provide beauty in kitchen decoration, a prominent manufacturer of electric refrigerators is offering, through dealers, sets of hardware which will further accent individual color schemes by brightening the refrigerator. Colored in black, yellow, tomato red, lettuce green, medium blue, and snow white, each set includes a brilliantly enameled door-handle combined with a harmonizing cap for the peaks of the door hinge.

Kitchen ranges, pots, electric clocks and tea kettles have long been good mediums for adding color to a kitchen, and the splendid reception of the refrigerator sets indicates that American housewives have become definitely interested in good kitchen decoration.

Plastic Sheet Material

"Duraloy" plastic sheet material for automotive, building and refrigerator industries is announced by the Detroit Paper Products Corp., Detroit, Mich. The material is resistant to heat and chemicals . . . . warm to touch, odorless, heat insulating, easily machined.

Questions & Answers

Pigment Wiping Stain
(Answer to a Question)

We notice the trouble reported by N. Q. Co., on pages 39 and 40 of June INDUSTRIAL FINISHING concerning their pigment oil stain. After reading this carefully and realizing the situation they are in, we feel that they are exercising all due care and caution possible in the handling of their stain.

The usual procedure when using dip tanks of stain is to renew with fresh stain and naphtha whenever the level goes below normal. The tank should be cleaned whenever an amount of sawdust accumulates to lessen the efficiency of the stain. In some plants cleaning of the tanks every three to four months is enough. This depends on the condition of the furniture as it comes from the mill or assembly room and how much dust is washed off in the tank.

A properly formulated vehicle in which the pigments are ground, handled correctly with well-balanced solvents in the manufacture of the stain will eliminate the trouble mentioned. However, in some cases, driers or oils are used in amounts that are not proportionate, which causes a reaction after a period of time. This would seem to be the explanation to the trouble of this firm, and to get away from this trouble it would be well to check the chemical composition of the vehicle used in the stain, together with an analysis of the diluent used to reduce the stain in the tank.

Many firms use high-test gasoline, benzine, and other naphthas, besides V. M. & P. naphtha for reducing, and as the oil companies are bringing out many new superior diluents, we recommend that this company put their problem before their stain supplier who would know the chemical structure of the stain and be able to recommend a procedure that will give them satisfaction, uniformity and economy.—Cudner & O'Connor Co.

Silk Screen Printing on Textiles
(An inquiry from Athens, Greece)

Being regular readers of INDUSTRIAL FINISHING, since 1932, we notice that all problems submitted to you by your readers are promptly and efficiently answered, and this incites us to solicit your assistance on the subject described in the accompanying explanatory note.

Textile printing, here, is not executed by machinery, as this would not pay owing to the small and rather too varied production.

The old system of printing by wooden stamps is now being replaced gradually by the silk screen method which, we are told, was first used in Japan and, after having been improved in the States, has passed over to Europe from where it is now being introduced here, especially in silk mills, under the French name "Impression au Film."

The silk screen is prepared as per enclosed explanatory note, and it is on the method of preparation of the screen, which we have heard perhaps incompletely, that we should like to have your advices.

We have read several articles, about the silk screen process of reproduction of various forms, in INDUSTRIAL FINISHING, but have not happened to see any discussing this particular photographic method of preparing the screen. We represent for Greece *Pyroxylin Finishes* of Acme White Lead & Color Works, Detroit, Mich., and Brunner spraying outfits of Brunner Mfg. Co., Utica, N. Y., and we wish to introduce both in textile mills for the application of the protective coat mentioned in the note, but in doing this we should like to be the initiators of an uptodate American method of preparing the screens.

Silk Screen Process of Reproduction on Textiles

After the silk screen cloth has been stretched on the metal frame, the designs to be reproduced on the textile are prepared with black ink on a transparent paper, and both are taken to a photographer's dark room where the silk screen cloth is coated all over the inside surface with a mixture of a photo-engraving glue, potassium bichromate, and perhaps some other photographic substance which fills the silk screen cloth meshes.

The characteristic of this coating is its solubility in water, as long as not attacked by the light.

After it has been left to harden in the dark, the paper with the black designs is placed on the inside surface of the screen with a pressing glass on it and the assembly. Thus arranged, it is brought to the light which attacks and renders insoluble in water all parts of the glue coating which are reached through the non-inked part of the transparent paper. As to the other parts which are protected by the inked designs, these are not influenced by the light and therefore, conserve their initial feature of water solubility.

After sufficient time of exposure to the light, the screen is again taken into the dark room where it is detached from the glass and paper and subjected to a bath of tepid water. The latter, according to what is said above, dissolves only those parts of the glue coating which correspond to the black designs, while the rest of it forms a ground so that when the screen is held against the light, a kind of perforated reproduction of the designs on the silk screen cloth can be seen.

In order to give the screen a protective coat, the whole of the inside surface is coated with a kind of lacquer which is brushed and fills again the meshes corresponding to the designs. These, of course, must be cleaned again and this is done by upsetting the sieve and rubbing gently the designs from the opposite side of the protective coating by means of a piece of cloth wetted in xylol, which dissolves again the lacquer particles in the meshes corresponding to designs.

NOTE: The application of dye on the textile is then made by means of a rubber knife [squeegee], pressing the dye solution through the perforated parts

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These beautiful surface effects are obtained with the utmost economy in finishing, quite often decreasing fabricated costs and offer distinctive and exclusive designs. Through the recently improved OXVAR Process it is possible to obtain all the depth, tone, beauty, and changeability of original wood grains and marbles that are found in no other method.

Our Art, Color, and Design Department is ready at all times to assist you or your color design engineers in adapting this process to your production. We maintain an engineering staff, and complete service for installing the process.

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Detroit, Mich.

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[mesh] of the screen, namely, in the usual silk screen method.

Questions:

1) Is the above method of making the screen the best one? If not, please suggest your own, mentioning in detail the substances which must constitute the glue coating.

2) Would you suggest the use of fine wire cloth (and of what number) instead of silk cloth? In order to be able to make repeated use of old screens of either silk or wire cloth, when designs have become obsolete, what chemical means could one use, in either case, for dissolving the glue coating without spoiling the screen?

3) What lacquer, oil or synthetic material, brushed or sprayed, would you suggest as a protective coat over the glue filler of meshes, and what means for cleaning the meshes of designs from the particles of the protective coating. — COURCOUMELIS, PHOCAS & Co., ATHENS, GREECE.

Answer by H. W. Parmele, Sales Manager of Naz-Dar Co. (Silk Screen Process Paints, Equipment & Supplies), 4014 N. Rockwell St., Chicago, Ill.

By far the greater yardage of textiles printed in this country is by the silk screen method, following very much the same procedure as outlined in your letter. You have the procedure. Probably the greatest difficulty is in the materials used, which must be products that have been developed for the purpose.

Answering your questions:

1) This method of making screens is a good one. It is known as the "Photographic Method." It involves two separate operations, the making of the screen itself and afterwards giving it a protective coating.

We might mention here that all of the textile printers use a special green enamel that has been developed for that purpose. This enamel is handled exactly as you have outlined. After the photographic screen has been completed and dried, the green enamel is brushed over the top or inside of the screen plate, after which it is removed from the open meshes or printing area by wiping with a turpentine-saturated cloth from the bottom side of the screen.

A great many textile printers also make their screens with this same green enamel by what is known as the "hand-cut-in" method. Following this method, after the silk has been stretched on the frame it is placed over the original drawing. The silk being transparent, the design is easily traced onto the silk. After the design portion has been completed the stencil is mounted over a light to make filling easy and so that no places will be missed or pin holes developed during the operation. This usually consists of a table covered with frosted glass beneath which are lights. Using the same green enamel as mentioned above, the design is then blocked out by following the traced designs, blocking out or masking all portions of the silk that are not to print.

This special green enamel is used by all of the textile printers and, while many other materials have been tried, they always continue the use of this product. Its make-up is such that it withstands perfectly the various solu-

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PORES NEED FILLING for smooth - textured attractive finishes. Presdwood, celotex, natural woods, rough metals and porous compositions need quick-drying, easy-sanding, high-bodied surfacers—in short, our CEL-U-LAK Surfacers.

These have unusually high body, coupled with low viscosity, permitting a heavy application by spray; air dry to sand in 1½ hours, force dry at 125° for 20 minutes. They are ground finely and have phenomenal adhesion and resistance to moisture.

CEL - U - LAK Surfacers are standard in white, ivory, dark grey and red. They have for 6 years been an outstanding successful item in our line. We suggest you examine it for your requirements.

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222 E. Ohio St. Indianapolis, Ind.

tions, caustic, etc., that are used in the dye medium.

For photographic solution, or sensitizer as it is called, there are several different combinations that may be used. There is one formula listed in "Silk Screen Methods of Reproduction," which book you have secured, which is as good as any that can be mixed in the shop. Incidentally, we might mention here that this formula calls for Naz-Dar photo glue. This comes in dry form. All sensitizers that may be mixed on the job are various combinations of glue, gelatin and bichromates. Some are better than others but they all have disadvantages.

Birtex Sensitizer is the best solution of this kind that we have ever been able to discover. It contains special gums which insure ease of making the stencils and long life to the screen. The method of handling this is described in one of our circulars.

2) We do not recommend the use of wire cloth for making screen plates or stencils for any purpose. This has often been attempted and we have many times tried ourselves to make the use of this product satisfactory, but it has a number of objections which seemingly cannot be overcome. To begin with, the material is more expensive, the selling price in this country being around $2.00 per square foot. Due to the construction of the weave and the nature of the hard wire strands, it deposits a heavier coating of material. This also makes a more ragged surface upon which to work the filler and sensitizer. The print itself is quite apt to have a very noticeable saw-tooth effect. The design

can not be traced for hand filling.

Textile screens are usually of large size, and wire cloth is very difficult to stretch tightly, which is necessary. If a screen is allowed to drop or even to rest on a foreign object, which often happens, a dent is made in the wire and it is cannot be repaired. If this dent happens to come in any portion of the design it will be impossible to print satisfactorily. There are a number of other reasons why the silk bolting cloth is used almost entirely, not only for textile printing but for other types of printing as well. No. 12XX or 13XX screen silk or bolting cloth is usually used.

There is no satisfactory method of removing the photographic solution from the screen after it has once gone through the exposure and process of making. About the only thing that will do it is a solution of caustic soda, and nine times out of ten this will ruin the silk as well. It may not be apparent at the time, but it will have become so weakened that it will probably break down on a future run. Ordinarily, no attempt is made to use the silk for more than one design. The cost of silk, when distributed over large number of prints, becomes rather small.

3) This question is covered in the answer to Question No. 1. Whatever material is used for the protective coating, it is removed from the opposite side of the open meshes by wiping with cloths saturated in the solvent for that particular material. In the case of the green enamel, benzine or turpentine or some similar paint solvent would be used as the cleaning medium.

No lacquer has ever been de-

SPRUANCE QUALITY LACQUERS

have been developed to meet the present day requirements of both furniture and metal industries.

Our laboratory and technical staff is efficiently supported by factory trained service men.

Write Now: Your finishing problem will be analyzed and material specifications supplied without obligation.

SPRUANCE QUALITY

Specialists in the manufacture of wood and metal Finishing Products, Varnishes, Lacquers and Enamels since 1907.

The Gilbert Spruance Co.
RICHMOND AND TIOGA STS.
PHILADELPHIA, PA.

veloped for this purpose that has been satisfactory. Many attempts have been made, but none proved out.

We hope that the information given to you is what you desire.

Note to Industrial Finishing:

We are glad to co-operate with you on textile printing but to be perfectly frank, this subject is so extremely technical that we hesitate about attempting to enlighten the trade in general on the subject.

As you perhaps know, most of the textile printing is in the hands of a comparatively few operators, practically all of whom are located in and around New York City. These concerns specialize in that type of printing and do nothing else. They receive the rolls of silk and other fabrics from the manufacturer, print and return. They all operate their own laboratories, working out their own problems and making all of their own printing mediums.

There are a few small operators here and there throughout the country, printing on fabrics through a silk screen, but their production is limited and their work, as a class, is not extremely high grade. Most of these are offshoots of the large houses, where some employe has left and started a little business of his own.

Most of the points on textile printing depend upon individual conditions, upon the individual color being used, methods of handling, etc. Rarely are two dyes handled alike.

Frankly, we feel that this is one phase of the Silk Screen Process which you had better leave alone unless you can find someone who is thoroughly familiar with this work and who would be willing to advise you authoritatively. We doubt this, however, as such a man would already be employed. It has been our experience that most of these textile printing houses guard their methods and secrets very closely.

Of course, we have a general

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Colored Bronze Powder
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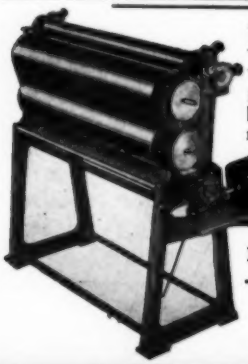

Roller Coating Machine
You can use this machine for applying liquid finishing materials to sheet stock or strip stock by means of rollers, as in printing. A faster, more economical method of finish application, resulting in better work. Adaptable to coating wood, metal, composition board and heavy package stock. Write us for details! Let us show you how this Roller Coating machine will help you.
NAZ-DAR CO., 4014 N. Rockwell, Chicago

idea of the process, methods used, etc., and have been able in many cases to help some of our customers get started in this business, but so far as setting ourselves up as an authority on the method, we could not do that. There are too many ramifications. However, we are glad to be in assistance in this particular case, and if it is possible for us to be of aid to you or your readers in the future, we shall be glad to do so.—NAZ-DAR CO.

Gray Shades Popular

One of the colors that is receiving increasing attention in the New York City vicinity is gray, especially as a background color. In interior decoration, in walls, even in furniture and in many furnishings, gray has achieved prominence as a leading color and as an accent color. It harmonizes with practically every color of wood and fabric, and gives an air of coolness and refinement.

Several model furnished rooms in the leading department and exclusive stores of New York City feature gray as a popular color. In some cases it is combined with the still popular white tints. Walls are painted solid light gray, and in some of the newest wall papers we see gray in attractive combinations with rose, pink and other harmonizing pastel tints.

Contrary to popular opinion, there are many shades of gray, ranging from the soft French gray through lavender gray, light bluish gray and dove gray.

It is used as a background color in many instances where the

NU-TIPE

Wiping Stains

are Worth Investigating!

Write for samples of these wiping stains that provide far greater uniformity than all other oil stains. Their use greatly reduces the need for shading.

For trimmings on table legs and case goods and other surfaces, NU-TIPE Wiping Stains provide light uniform colors as color-fast as water stains. Made for brushing, dipping, spraying.

THE LAWRENCE-McFADDEN CO.

1400 FRANKFORD AVENUE

PHILADELPHIA, PENNA.

former background scheme would be ivory, white or a cream color. It makes a charming background, and also a splendid contrast color for nearby color schemes of a different type.

Carefully toned, gray is a real help in giving the effect of that elegance in interior decoration which is now considered so very desirable.—B. CALDWELL.

Letters from I. F. Readers

(Continued from page 7)

ting. Boring the holes punctures the finish coating which opens the way for water to seep into the wood and get under the finish coat which then soon begins to peel off. We had this problem up with you once before, but none of the materials recommended by their makers stood up any better than ordinary spar varnish. This impregnating business might be the solution of our troubles.—J. D. Co. (Mfrs. of Woodwork).

Happy Days Again

Do you still publish INDUSTRIAL FINISHING? I used to get it when with the S— Equipment Co., but the Depression wiped us out. However, I begin to feel that life is really worth living again, but it wouldn't be complete without INDUSTRIAL FINISHING.—N. E. G.

Metal Signs

We would appreciate your advising us the name of any trade publication that you may have listed in your files which treats of either the manufacture or distribution of lithographed metal advertising signs, or metal signs made by such processes as silk screening, embossing, etc.—Q Art Mfg. Co. (Builders of Mechanical Toys).

Small Flat Articles

We are sending a sample of finished and unfinished brass loops and buckles such as are used on ladies' undergarments. We are now painting these on screens. On reading April issue of INDUSTRIAL FINISHING magazine, we notice an article written by Mr. H. H. Ford in reference to a machine called "Filwhirl Enameler." We would like to know if you consider this machine practical for doing our type of work? If you feel it is practical, kindly send us full details if possible, as to where we may purchase same, price, etc.—H. & S. (Mfrs. of Ladies' Undergarments).

EDITOR'S NOTE: The sample loop resembles a miniature block letter O, little more than 3/16-in. wide by 1/4-in. long and perhaps as thin as 1/64-in. or less. The buckles or

Imperious Requirement of Furniture Manufacturers

BLANCHIT - BLONDE
Authoritative Modern

BLANCHIT
Reg. U. S. Pat. Off.

Made by L. R. VAN ALLEN & CO.
CHICAGO

"slides" are like a double O or a squat flattened figure 8. The latter are tongueless buckles quite familiar to all well dressed ladies. We referred this to Leon J. Barrett Co., thinking the job could be done satisfactorily in a Filwhirl Enameler, but this company reports that because of the thin flat shape of these very small light-weight articles, they have a tendency to stick together flatwise, and the coating job is not entirely satisfactory. Suggestions from readers will be welcome. If it were permissible to leave the edges uncoated, the articles might be coated in sheet or ribbon form and then stamped or cut to shape afterwards.

Fountain Striper

Kindly advise prices on fountain pen stripers and where they can be purchased.—L. B. Co. (Aluminum).

Flock Coated Paper; Process Paint

Will you kindly give us the names and addresses of a few manufacturers who coat paper with wool and rayon flock, on the order of the sample attached? We can use this in either rolls or flat sheets. Also, we want to know the name of a concern that makes an adhesive paint—the kind that is used in making tinseled signs and is applied to the cardboard through a silk screen.—Flash-A-Lite (Multicolored Electric Eigns).

Grained Finish

Could you give us any information as to the stenciling or transferring of wood grain finish onto metal caskets? If not, could you refer us to someone or some company that can help us out in this instance? We are regular readers of INDUSTRIAL FINISHING, and find many articles of interest both to ourselves and to our finishing foreman.—R. A. Mfg. Co. (Upholstered Furniture).

We are interested in the wood graining process, as described on page 34 of June, 1936, issue. Please inform us as to the name of the manufacturer of this transfer graining paper, as we may possibly have use for a material of this type.—Z. Art Craft Co. (Three Dimensional Displays).

Practical Japanning and Enameling

HERE is the first authoritative handbook of its kind, containing much information that has never before been published. You will find between its covers facts, processes, and formulae that have been considered secret by many japanners.

The author has actually been doing this work for others for many years and he knows whereof he speaks. No one has ever gone into the subject of metal finishing more deeply than he nor has the subject ever been explained so clearly and effectively. This book was eight years in preparation.

Color plates and a multitude of tables and illustrations make the text even more clear and understandable. The volume is bound in harmony with its companions of the Practical Finishing Series and makes a rich, attractive appearance . . . 22 chapters.

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221 EAST OHIO ST.

INDIANAPOLIS, INDIANA

Industrial FINISHING

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EDITORIAL

Pre-Finished Sheet Stock Has Promising Feature

Out of the numerous developments and activities we see and hear about in several industries, we are particularly impressed with the fact that pre-finished sheet stock in metals and various composition materials is destined to find an increasingly important place in building and in interior furnishing and decorating, as well as in the fabrication of more factory made products, including furniture. Pre-finished sheets can be had in flexible, semi-flexible and rigid form, in different sizes and thicknesses, with practically any type of finish desired—that is, in plain colors or various decorative effects.

Pre-finished sheets or panels are being used both inside and outside of commercial bodies and buildings, the edges in some cases being fit into slender grooved moldings which are secured to the structural frame work. As a result, the covering of a given wall or ceiling area proceeds much more rapidly (fewer small pieces to handle, hence less cutting and fitting) and there is no custom painting to do afterward—only washing or wiping off.

The trend of surface design away from intricate molded, carved and turned work, to the more smooth streamlined effects, is another factor that favors the use of pre-finished sheets, supplemented by plain slender moldings to furnish parallel lines.

Contributing further to this trend are the improved materials and equipment now available for finishing sheet stock. More attractive and more durable coatings are being applied, and the work is being done economically in "line production." Continuous conveyors and automatic machines perform the preliminary surface cleaning and drying operations. Then follows automatic coating by dipping, spraying or with rollers, supplemented if desirable with continued travel by conveyor through baking ovens and cooling areas. The labor of handling work in process is reduced to a minimum, thereby affording added economies, once the machinery of production is set up and operating.

Industrial Markets; Location; Statistics

The Bureau of Foreign and Domestic Commerce, Department of Commerce has found that one of the problems constantly harassing industrial marketing executives is the inability to get an accurate visual picture of the markets in which they operate. Failure to have such information often leads to serious errors in both sales planning and promotion, with a consequent high marketing cost.

In an effort to be of direct aid in helping toward the establishment of more effective and economical market practice, the Bureau of Foreign and Domestic Commerce has undertaken to produce a series of experimental studies showing in concise, visual form the present major markets for industrial machinery, equipment, and supplies.

The study of the American textile markets, which is the first study made available in the series, records the location of approximately 98% of the textile industries of the country by counties. The study includes a series of six maps showing separately the distribution of the cotton, woolen and worsted, silk and rayon, and knitting industries, and a summary map of the entire textile industry. In addition, there is census statistical data covering the number of establishments, wage earners, wages, value of products, and separate tables showing in detail the quantity of each type of machinery in place, by counties.

This publication will be of basic value to marketing executives, advertising agencies, and others interested in the location and density of the textile industries of the country, according to the Commerce Department.

The full title of the publication is "Basic Industrial Markets in the United States—The Textile Industries," Market Research Series No. 14.1. Copies may be obtained direct from the Bureau of Foreign and Domestic Commerce, Washington, D. C., or any district office of the Bureau at 10 cents a copy.

Furniture Industry's Present and Future Prospects Bright

Earnings of the furniture industry in 1935 were the best for any year since 1929, both from the standpoint of dollars and percentage on net sales, according to the annual survey issued by Seidman & Seidman, certified public accountants. This is the 16th annual report of the activities of the furniture manufacturing industry to be made by this organization.

The report covers data submitted by a large number of furniture manufacturing plants throughout the country and reveals that the industry realized an operating profit last year of about .5% on sales, as compared with a loss of 5.9% on sales sustained in 1934. This is the first operating profit reported by the industry in six years. Deduction for interest charges, etc., from the operating profit brought the industry where it again slipped "into the red" with a net loss of .6% on sales. This, however, compares with a net loss of 6.9% on sales sustained in 1934.

Of all the plants reporting,

44% showed a net profit for 1935 and 56% suffered a net loss. This compares with 30% reporting a profit, and 70% a loss in 1934.

The accountants' study shows that the increase in dollar volume in 1935 was 30% as compared with 1934; case goods accounted for about 44% of the total volume; upholstered goods, 32%; and novelties and specialties (including tables, chairs, etc.), 24%. However, notwithstanding the large volume rise in 1935, the industry's activities were still very low. At the close of 1935, the industry's index stood at only 37% of its 1923-1925 level, as compared with an index figure of about 90% attained by industry in general.

The report points out that on an average about nine out of every ten plants increased their volume in 1935 as compared with 1934, and the larger plants made by far the best showing both in volume and profits. This represents a complete reversal of the situation prevailing in 1932, 1933 and 1934 when small plants made the better showing. It was also held to indicate a return to the condition generally prevailing prior to 1931 when earnings tended to be the best for the large plant and to vary closely with the size of the operations.

Apart from the relation between size and earnings, the study indicates that upholstered goods made the best showing all around and case goods the worst. Upholstered goods volume rose approximately 40% as compared with 1934, while case goods increased some 30% and novelties and specialties, about 20%. Eighty per cent of all upholstered goods manufactured during the year yielded a profit, whereas 77% of specialties and 49% of case goods showed in the black. The upholsterers showed a net profit from operations of more than 3% on sales. Novelties and specialties showed a profit of about 2% and case goods lost nearly 2¼%. The upholsterers got their advantage chiefly from lower overhead costs as compared with the rest of the operators. The point was stressed, however, that "for all divisions of the industry costs and selling prices are still uncomfortably close together and that the industry as a whole has a long way to go to bring about a sound correlation between these factors."

The report further reveals that employment in the industry in 1935 was 20% higher in numbers and 27% more in dollar payrolls, and that the output per factory employe rose from $2,400 to $2,800 as compared with 1934.

In reviewing the prospects of the furniture industry, Frank E. Seidman, who prepared the report for his organization, states

that a major upturn is in the making, basing this on the optimistic outlook for home building.

"There are at least ten reasons," the report continues, "for genuine optimism as to homebuilding prospects . . . .

"Thus, optimism is running high as to home building. One hesitates to use the word 'boom' in assaying housing's future in the fear that it may turn out to be a 'boom-erang.' In any event, there should be no hesitancy in concluding that housing's prospects are extremely bright.

"If past experience is any criterion, it may be assumed that the anticipated increase in home building will vigorously stimulate demand and output. To this stimulant will be added the large latent replacement demand for furniture. These factors, together with the unusually low inventories in the hands of both manufacturers and dealers and the natural increase in furniture buying which may be looked for with improving business conditions, give furniture's prospects a decidedly 'rosy' hue."

Classified Advertising

Advertisements under this heading 45 cents a line per insertion, minimum charge, $1.35. In estimating, calculate six words to one line, and add one additional line for heading. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

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A leading and old-established manufacturer of wood and metal finishes located in Philadelphia seeking an experienced salesman who has a following among furniture factories and industrial concerns in Vermont, Connecticut and Massachusetts. Have nucleus for a good business in this territory. Liberal drawing account, plus commission. Excellent opportunity for salesman experienced in this line to make a real job for himself. Must furnish past records and references as to ability and character. Replies confidential. Address IF-615, care Industrial Finishing.

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Large established manufacturer desires the services of expert finisher, good color man, able to create finishes, and if necessary call for service work in plants east of the Mississippi River. Headquarters Chicago. State fully experience, salary expected, and general qualifications. Address IF-617, care Industrial Finishing.

SALESMAN WANTED

Nationally-known manufacturer of woodfinishing materials has North Carolina territory open for an experienced salesman among furniture accounts. Business established but applicant must have following. Straight commission earnings. Give age, experience and references in first letter, all strictly confidential until interviewed. Our men know of this ad. Address IF-616, care Industrial Finishing.

MAKERS OF SPRAY GUN PARTS

Established manufacturer wishes to job out portion of its rapidly growing business with established makers of accurate parts — spray nozzles, needle valves, locknuts, spuds, etc. Address IF-619, care Industrial Finishing.

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Will sacrifice for prompt sale complete shellac cutting equipment including 3, 450-gallon agitator tanks, shellac loader, De Laval clarifier, pumps, can filling machine, belting, shafting, motor, etc. Photograph on request. Address IF-618, care Industrial Finishing.

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